2012 PA Botany Symposium Records

The Pennsylvania Botany Symposium's inaugural meeting brought academic and amateur botanists together to share current research in the region. It took place at Powdermill Nature Reserve, the environmental research station of the Carnegie Museum of Natural History located in Rector, Pennsylvania, November 9–10. BSWP was one of 23 symposium sponsors.

The event kicked-off with a Friday evening social on November 9th. Attendees enjoyed food and beverages and socialized with fellow botanists and botanizers.

Seven invited speakers presented their work at the symposium to the full house of 117 participants on Saturday. Our President Bonnie Isaac emceed the event. Scott Schuette of the Western Pennsylvania conservancy led a field trip on mosses of Powdermill following the final speaker.

The symposium program included the following seven speakers: Rob F. C. Naczi, Arthur J. Cronquist Curator of North American Botany, The New York Botanical Garden (Keynote); James C. Lendemer, Post-Doctoral Researcher, The New York Botanical Garden; Susan Kalisz, Professor of Evolutionary Ecology, University of Pittsburgh; James K. Bissell*, Director of Botany and Natural Areas, Cleveland Museum of Natural History; Joseph A. Isaac, Project Manager, Civil & Environmental Consultants, Inc.; Ernie Schuyler, Curator Emeritus of Botany, Academy of Natural Science sand Andrea T. Kramer, Executive Director, Botanic Gardens Conservation International.

The symposium is a biennial event, and each one will take place in a different location. We hope to see you at the next one!

** A last minute cancellation due to family illness resulted in Steve Grund presenting Jim Bissell's presentation.*

November 9, 2012

6:30 – 9:30 p.m.
Friday Evening Social

November 10, 2012

7:00 – 9:00 a.m.
Registration, Continental Breakfast
7:45 – 9:00 a.m. Vendor session
9:00 – 10:00 a.m. Keynote address
Advances in our knowledge of the flora of northeastern North America during the past two decades
Robert F. C. Naczi, Arthur J. Cronquist Curator of North American Botany, The New York Botanical Garden
10:00 – 10:40 a.m. *The Lichens of Pennsylvania: understanding an imperiled part of our biological heritage*
James C. Lendemer, Post-Doctoral Researcher, The New York Botanical Garden
11:00 – 11:40 a.m. *Species interactions in a Pennsylvania forest: native plants, invasive plants, and herbivores*
Susan Kalisz, Professor of Evolutionary Ecology, University of Pittsburgh
11:40 a.m. – 12:20 p.m. *Recovery of native plant diversity after removal of invasive species in wetlands in northwest Pennsylvania*
James K. Bissell, Director of Botany and Natural Areas, Cleveland Museum of Natural History (presented by Steve Grund)
12:20 – 1:20 p.m. Lunch
1:20 – 2:00 p.m. *Important plant discoveries in Pennsylvania from the past 10 years*(compiled from submissions)
Joseph A. Isaac, Project Manager, Civil and Environmental Consultants
2:20 – 3:00 p.m. *Colonial and Early American Botany*
Alfred E. Schuyler, Curator Emeritus of Botany, Academy of Natural Sciences

3:00 – 3:40 p.m. *Current Issues in Botany — Botanical Capacity Shortcomings*
Andrea T. Kramer, Executive Director, Botanic Gardens Conservation International (US)
3:40-4:00 p.m. Wrap-Up and Conclusion
of Symposium
4:00 – 5:30 p.m. Bryophyte Walk
Scott Schuette, Bryologist/Inventory Coordinator, Western Pennsylvania Conservancy/Pennsylvania Natural Heritage Program

ABSTRACTS

Rob Naczi
Advances in our knowledge of the flora of northeastern North America during the past two decades. The New York Botanical Garden is sponsoring a complete revision of *Manual of Vascular Plants of Northeastern United States and Adjacent Canada* by Henry Gleason and Arthur Cronquist (1991). Gleason and Cronquist is the most recent in a long line of books on the spontaneous flora of northeastern North America. The rapid pace and broad scope of botanical advances in the past two decades amply justify a revision. This presentation will review these advances, as well as the kinds of changes necessary, the plan for the revision, and the innovations relative to Gleason and Cronquist. As with Gleason and Cronquist, the New Manual will be first and foremost a tool to facilitate accurate identifications of the flora (ca. 5000 species) in a vast region (all or portions of 22 U.S. states, including Pennsylvania, and 5 Canadian provinces). In addition, the New Manual will provide detailed information on geographic distributions, habitat, conservation status, and etymologies.

Susan Kalisz
***Species Interactions in a Pennsylvania Forest: Native Plants, Invasive Plants and Herbivores*.** Exotic species invasive success is context-dependent. Species interactions within native communities are hypothesized to favor or thwart invasion success. I present results of long-term studies on species interaction in Pennsylvanian forests where the herbivore *Odocoileus virginianus* (white-tailed deer) is (over)abundant and the allelopathic species *Alliaria petiolata* (garlic mustard) is aggressively invading. Results from field experiments tracking native and invasive plant population dynamics in paired plots (deer exclusion [fenced] vs. presence [unfenced]) agree with results from investigations across a deer browsed gradient. Deer suppress all focal native species in our study. Further, *A. petiolata* maintained explosive annual population growth rate, λ=1.33, and high densities in unfenced plots while in plots without deer native populations rebounded, *A. petiolata's* growth rate plummeted to λ=0.88, and its density became low. These results link high deer abundance to altered native-invasive species interactions and invader success. Controlling ungulate numbers may diminish invaders' success worldwide with profound implications for economic and ecosystem functions of landscapes they currently dominate.

Jim Bissell
Stewardship of Wetlands within Northwestern Pennsylvania. Several alder–sedge fens, greater bur-reed marshes and tussock sedge marshes within northwestern Pennsylvania have suffered severe degradation during the last few decades due to encroachment of non-native narrow-leaf cattail (*Typha angustifolia*), reed grass (*Phragmites australis* ssp. *australis*), canary grass (*Phalaris arundinacea*) and purple loosestrife (*Lythrum salicaria*) during the last 20 years. An effort to restore emergent marshes and palustrine sand plains at Presque Isle was initiated 20 years ago. Ten years ago, Cleveland Museum of Natural History staff initiated the restoration of two alder–sedge fens, one in Erie County and one in Crawford County. A program to remove the four main invaders at first appearance within two other fens, one in eastern Crawford County and one in Warren County was also established ten years ago. Removal at first appearance has proved to be a more effective method of stewardship due to the establishment of a non-native seed bank if removal is initiated several years after the first invasions.

Alfred E. Schuyler
Colonial and Early American Botany. Southeastern Pennsylvania was the hub of American botany from the 1730s to the 1830s. The stimulus came from the desire by English aristocrats to obtain American plants and the desire by Europeans and Americans to name, describe, and illustrate the American flora. Furthermore Philadelphia institutions provided

resources for botanical activities, along with gardens and herbaria. The botanists who fulfilled these desires and utilized Philadelphia resources included John Bartram, William Bartram, James Logan, Peter Kalm, William Young, Humphry Marshall, André Michaux, Henry Muhlenberg, Benjamin Smith Barton, Frederick Pursh, John Lyon, François Michaux, William W. P. C. Barton, Lewis David von Schweinitz, Constantine Samuel Rafinesque, and Thomas Nuttall. This presentation discusses how this impressive array laid the foundation for American botany.

Andrea Kramer
Current Issues in Botany — Botanical Capacity Shortcomings. The botanical community plays a mission-critical role in researching, conserving, and sustainably managing the nation's plant diversity and resources. Botanical expertise is required to address current and future issues, including climate change mitigation, habitat restoration, invasive species control, and rare species conservation. Yet despite the fundamental role botanical capacity plays in tackling these issues, a recent assessment revealed severe shortages of botanists at government agencies, a wave of upcoming retirements, and an alarming decline in botanical degree programs and course offerings at the nation's colleges and universities. The result of a year-long project which surveyed nearly 1,600 members of the United States botanical community, the botanical capacity assessment project detailed the importance of building links between stakeholders throughout the botanical community. It makes the case for action across all sectors to work more strategically to effectively pool resources and ensure program sustainability and conservation success into the future.

2012 Symposium Speakers

Robert Naczi, Ph.D. is a plant systematist and Curator of North American Botany and the New York Botanical Garden. Rob is a leading authority on the flora of the eastern United States, the sedge genus *Carex* (Cyperaceae), and the Western Hemisphere Pitcher Plants (Sarraceniaceae). He specializes on documenting the changing plant life of the Northeast. Presently, he is writing a comprehensive account of the Northeast's plants, *New Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. Naczi uses a multi-pronged approach to his research, utilizing field, herbarium, and laboratory methods. His field work has given him first-hand knowledge of the flora of much of North America.

Naczi earned the B.S. in Biology from St. Joseph's University, Philadelphia, in 1985. He earned the Ph.D. in Botany from University of Michigan in 1992. Naczi has served in the Department of Biological Sciences at Northern Kentucky University, as Associate Professor and Herbarium Director, and at Delaware State University, as Herbarium Curator, Graduate professor, and Founding Director of the Scanning Electron Microscopy Laboratory. In late September 2008, he started his job as Curator of North American Botany at The New York Botanical Garden.

Susan Kalisz. Professor Kalisz's research addresses questions related to the evolution, ecology, development and conservation of flowering plants and their communities. One research area in Kalisz' lab addresses the roles of mutualists, herbivores and invaders on the population and community dynamics of forest understory species. A second avenue of research explores the conditions that favor or maintain both outcross and self-pollination within populations and species (mixed mating) including the ecological environment. She is testing the long-standing idea that selfing is an evolutionary dead-end using genomic analyses of the genus *Collinsia* as a model system. Professor Kalisz earned a BS degree at the University of Michigan and a MS and PhD at the University of Chicago. After becoming a tenured Associate Professor on the faculty of Michigan State University, she moved to the University of Pittsburgh and is currently a Professor of Evolution and Ecology. Research award agencies include the National Science Foundation, Phipps Conservatory and Botanic Garden, Heinz Endowments, The Nature Conservancy and The West Penn Conservancy. She has authored more than 60 publications in scientific journals. Professor Kalisz is currently an Editor of the journal *The American Naturalist*, an Associated Editor for the journal *Evolution*. She has served as a Program Director for the National Science Foundation, as a member of the Board of Directors of the National Aviary, and working group leader at National Evolution Synthesis Center (NESCent).

James Bissell. Dr. Bissell joined the staff of the Cleveland Museum of Natural History in September of 1971. From 1971 through 1972, he worked as an assistant in the Collections Division at the Museum and also established the wild plants

garden in the Museum Courtyard. He was given the title of Curator of Botany in November 1972. In addition to organizing the Museum Herbarium, Curator Bissell began a regional plant inventory program to fill a niche that had been abandoned by colleges and universities in the Cleveland region several decades earlier. The high quality plant specimens in the newly organized Museum Herbarium, predominantly from the nineteenth century, provided a fine base for building a regional herbarium. Today, the Museum Herbarium houses over 75,000 specimens.

In 1976, Curator Bissell was named Museum Coordinator of Natural Areas and was put in charge of managing the Museum's Natural Areas Program. Since that time, the natural areas holdings of the Museum have increase from eight to 42 preserves, totaling more than 5,000 acres.

In 1984, Curator Bissell extended his rare plant and natural area inventory program into northwestern Pennsylvania. He began conducting comprehensive inventories at places such as Presque Isle State Park and thousands of acres of glacial wetlands in Erie, Crawford, Mercer, Venango and Warren Counties. Since extending the survey program into Pennsylvania, he has documented more than 600 rare plant occurrences and discovered several natural areas with statewide significance. His work during the last twenty years has shown that Presque Isle State Park has more rare plants than any other natural area in Pennsylvania.

During the last two decades, Curator Bissell has worked to build bridges between the Museum Herbarium and Natural Areas Program. The current marriage of the two programs is called Conservation Outreach. As part of the Conservation Outreach Program, he has spent an ever increasing portion of his time building relationships with private and public landowners in order to pass on the accurate knowledge in the Museum Herbarium to those in charge of special natural lands.

Alfred E. "Ernie" Schuyler. Alfred E. "Ernie" Schuyler is Curator Emeritus of Botany at The Academy of Natural Sciences, where he has worked since 1962. He received his A.B. in botany from Colgate University in 1957 and his Ph.D. in botany from the University of Michigan in 1963. He has numerous publications on the systematics of sedges, the distribution and ecology of aquatic plants, the systematics and ecology of rare plants, and botanical history. He has taught at Swarthmore College, the University of Montana, Rutgers University, Millersville University, and Michigan State University. He presently teaches two adult education courses at the Arboretum of the Barnes Foundation. His current interests include the systematics and ecology of rare plant species, the relationships between plant diversity and environmental quality, and the history of botanical exploration in North America.

Andrea Kramer. Andrea Kramer has been in the role of Executive Director of BGCI US since January 2008. In this role, she works on plant conservation, research, and outreach programs and is charged with connecting botanic gardens and partners in the United States with BGCI's global plant conservation network and resources. Recent projects include the North American Collections Assessment and Botanical Capacity Assessment. She currently chairs the American Public Garden Association's plant conservation professional section.

Prior to joining BGCI, Andrea worked for 8 years in the conservation department at Chicago Botanic Garden, where she collaborated with the Center for Plant Conservation to expand its National Collection of Endangered Plants, and with the Bureau of Land Management to research plant restoration practices in the western United States. She completed her Ph.D. at the University of Illinois at Chicago on the ecological genetics of *Penstemon* species in the Great Basin.

Thank You to our Sponsors!

Special thanks to John Wenzel and the Powdermill Nature Reserve for their generous sponsorship and in-kind contributions totaling $5,000.00.

Northeastern Bulrush (Full registration for four participants, plus display space) **$1,000.00 or more**

• Botanical Society of Western Pennsylvania – http://www.botsocwpa.org/
• Carnegie Museum of Natural History – Powdermill Nature Reserve – http://www.carnegiemnh.org/powdermill/
• Civil and Environmental Consultants, Inc. – http://cecinc.com/
• Cleveland Museum of Natural History – http://www.cmnh.org/site/Index.aspx
• Pennsylvania Native Plant Society – http://pawildflower.org/
• Western Pennsylvania Conservancy – http://paconserve.org/
• Whetzel Family Foundation

Tall Larkspur (Full registration for two participants, plus display space) **$500.00**

• PA Dept. of Conservation and Natural Resources – Bureau of Forestry – http://www.dcnr.state.pa.us/forestry/index.aspx
• Earthforms Land Design
• Shaver's Creek Environmental Education Center – http://shaverscreek.org/
• Skelly and Loy, Inc. – http://skellyloy.com/
• U.S. Forest Service – http://www.fs.fed.us/

White Fringed Orchid (Full registration for one participant, plus display space) **$250.00**

• Crane Hollow Preserve – http://www.dnr.state.oh.us/dnap/preservelist
• GAI Consultants, Inc. – http://www.gaiconsultants.com/
• Jeff Irwin and Lauren Giarratani
• Phipps Conservatory and Botanical Garden – http://phipps.conservatory.org/
• Riparia – http://www.wetlands.psu.edu/home.asp

White Trout Lily (Family/Organization level contribution) **$100.00**

• Carnegie Museum of Natural History Herbarium – http://www.carnegiemnh.org/botany/collections.html
• Philadelphia Botanical Club – http://darwin.ansp.org/hosted/botany_club/

Adopt-a-Flower (Contribution will sponsor a student or low income registrant) **$75.00**

• Loree Speedy and Mark Bowers

Harbinger-of-Spring (Individual contribution) – **up to $50.00**

• Charles M. Bowers
• Karen M. Johnston
• Jeff Polonoli